## Rec'd PC./7 TO 08 JUN 2005

### (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

#### (19) World Intellectual Property Organization

International Bureau



# 

(43) International Publication Date 1 July 2004 (01.07.2004)

PCT

### (10) International Publication Number WO 2004/055129 A1

(51) International Patent Classification7: C09K 11/06, H01L 51/30, C08G 73/06, C08L 79/04, H05B 33/14, H01B 1/12

Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). DE KOK-VAN BREEMEN, Margaretha, M. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(21) International Application Number:

PCT/IB2003/005782

(22) International Filing Date: 5 December 2003 (05.12.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

02102754.5 13 December 2002 (13.12.2002) EP 1022660 12 February 2003 (12.02.2003) NL 03102262.7 23 July 2003 (23.07.2003) EP

- (71) Applicant (for all designated States except US): KONIN-KLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): BRUNNER, Klemens [AT/NL]; c/o Prof . Holstlaan 6, NL-5656 AA Eindhoven (NL). VAN DIJKEN, Albert [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). BOERNER, Herbert, F. [DE/DE]; c/o Prof . Holstlaan 6, NL-5656 AA Eindhoven (NL). LANGEVELD, Bea, M., W. [NL/NL]; c/o Prof . Holstlaan 6, NL-5656 AA Eindhoven (NL). KIGGEN, Nicole, M., M. [NL/NL]; c/o Prof . Holstlaan 6, NL-5656 AA Eindhoven (NL). BASTIAANSEN, Jolanda, J., A., M. [NL/NL]; c/o

- (74) Agent: DEGUELLE, Wilhelmus, H., G.; Philips Intellectual Property & Standards, Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM). European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ELECTROLUMINESCENT DEVICE

(57) Abstract: An electroluminescent device comprises a combination of a charge-transporting conjugated donor compound and a physician acceptor compound, the charge-transporting conjugated donor compound including a conjugated unit comprising a multivalent radical sub-unit having a first and a second unsaturated radical site and a shortest chain of unsaturated atoms connecting the first and the second radical site. The number of unsaturated atoms the shortest chain consists of is an odd integer, preferably 1. Such odd-integer sub-units provide the donor compound with lowest-energy triplet levels which are relatively high in energy which in turn enable the EL device, when the donor compound is combined with a suitable acceptor compound, to emit light with high efficiency. For example, highly efficient green light-emitting electroluminescent devices are obtained in this manner.